CRODA

Croda Inc
Manufacturing Facility
8 Croda Way
Mill Hall PA 17751
USA
Tel +1 (570) 748 7796
Fax +1 (570) 748 8042

January 24, 2012

CA Department of Toxic Substances Control
1001 "I" Street
Sacramento, CA 95814

Dear Sir or Madam:

In response to the FORMAL REQUEST FOR CHEMICAL INFORMATION AND ANALYTICAL TEST METHODS FOR SPECIFIED NANOMATERIALS received by Croda Inc. on January 26, 2011 from the California Department of Toxic Substances Control, enclosed please find the completed Chemical Information Callin Information for Nanometals, Nanornetal Oxides, and Quantum Dots. Croda Inc. is responding to the data call in as a importer of nano titanium dioxide products to California.

If you have any further questions or require more information please contact me at the address above or email below.

Kind Regards,

Mary Jo Smith
PSRA Manager
Croda Inc.
Maryjo.smith@croda.com

STATE OF CALIFORNIA
Department of Toxic Substances Control

Health and Safety Code Section 57019 Chemical Information Call-in Information for Nanometals, Nanometal Oxides, and Quantum Dots December 2010

This enclosure is provided for your convenience. You may provide the requested information in writing, and attaching any supplementary materials or explanatory information, in letter or report form.

SECTION A: CHEMICAL(S) *(check each one which applies for your company)*

☐ Nano Silver	☒ Nano Titanium Dioxide	☐ Nano Cerium Oxide
☐ Nano Zero Valent Iron	☒ Nano Zinc Oxide	☐ Quantum Dot(s)

SECTION B: BUSINESS IDENTIFICATION INFORMATION *(check one and complete items 1 - 10)*

☐ Sole Owner	☒ Corporation	☐ Limited Liability Company (LLC)	☐ Limited Liability Partnership (LLP)	☐ Unincorporated Business Trust
☐ Spouses' Co-ownership	☐ Registered Domestic Partnership	☐ General Partnership	☐ Limited Partnership	☐ Other: *(describe)*

1. Name of Sole Owner, Corporation, Partnership, Institution, Other.
Croda Inc.

2. Business Trade Name ("Doing Business As," if any)
Croda Inc.

3. Business Address (physical location of your business: street number and name, city, state, country, zip or postal code)
5871 Pine Avenue, Suite 220, Chino Hills, CA 91709-6545

4. Mailing Address (street name and number, P.O. box, city, state, country, zip or postal code, if different from 3)

5.Business Website Address(es): www.crodausa.com, www.croda.com

6. Name of Owner, Responsible Corporate Officer, Partner, Other.
Responsible Corporate Officer – Kevin Gallagher

7. Contact Information for Person in 6 above.

Name: Kevin Gallagher *Title:* President

Business Telephone: (732) 417-0800 *Email:* kevin.gallagher@croda.com

8. Number of Employees (California employees).
8

9. NAICS Code(s) for this business: *Primary:* 424690 *Other:* *Other:*

10. Nano Chemical Business Type: *(check applicable)* ☐ Manufacturer ☒ Importer ☐ Researcher

SECTION C: CERTIFICATION *(FOR THIS COMPLETE SUBMITTAL)*

I am duly authorized to prepare and submit this information, as a formal response to the request pursuant to Health and Safety Code section 57019(d)(1), and certify the information and statements made herein, and in the attachments, are correct to the best of my knowledge and belief.

Name: *(type or print)*	**Signature:**	**Date:**
MaryJo Smith	MaryJo Smith	January 24, 2012

SECTION D: NANOMATERIAL CHEMICAL AND PHYSICAL PROPERTIES *(Attach additional pages as needed)*

PRODUCT / PRODUCTION INFORMATION

NANO CHEMICAL NAME: *(Use a separate page for each unique chemical.)* Nano Titanium Dioxide

COMMERCIAL NAME(S): Tioveil 50 FIN-LQ-(WD)

ANNUAL PRODUCTION VOLUME:

PRODUCTION METHOD(S): Dispersion

IDENTIFICATION OF THE SUPPLIER(S): Croda Europe Ltd.

PARAMETER		VALUE / RANGE[1] (include units)	NAME OF ANALYTICAL METHOD(S)[2]
PHYSICAL PROPERTIES			
SHAPE (MORPHOLOGY)		Acicular	Transmission Electron Microscopy
DENSITY Tap Density g/cm³		0.31	Tap Density
SURFACE AREA		55 m²/g	BET. Isotherm
PARTICLE SIZE DISTRIBUTION	Air		
	Liquid (Oil)	Mean Particle Size 40-45 nm	X-ray Disc Centrifuge
	Solid / Powder		
OTHER (Specify)			
CHEMICAL PROPERTIES			
CHEMICAL COMPOSITION		Titanium Dioxide	X-ray Diffraction
SURFACE MODIFICATION (COATING, FUNCTIONALIZATION)		Alumina Aluminum Stearate	
PURITY		Meets USP monograph	USP Test Methods
SURFACE CHARGE			
DISPERSION[3]	Air	Not Applicable	
	Liquid	Please see Attachment I.	
	Solid	Not Applicable	
IDENTIFYING AND DETERMINING CONCENTRATION OF NANO CHEMICAL, ITS METABOLITES, AND DEGRADATION PRODUCTS IN SPECIFIED MATRICES[4] Water, Air, Soil, Sediment, Sludge, Chemical Waste, Fish, Blood, Adipose Tissue, Urine, Other (specify)			
SOLUBILITY	Water Solubility	Insoluble	
	Solubility in Organic Solvent	Insoluble	
N-OCTANOL-WATER PARTITION COEFFICIENT		Not applicable	
STABILITY AND REACTIVITY	Flammability	None	
	Explosiveness	None	
	Oxidizing Properties	None	
	Oxidation Reduction Potential	None	
	Storage Stability and Reactivity (Container Material)	None (stable)	
	Stability to Thermal, Sunlight, and Metal(s)	Stable	

SECTION D: NANOMATERIAL CHEMICAL AND PHYSICAL PROPERTIES *(Attach additional pages as needed)*

PRODUCT / PRODUCTION INFORMATION

NANO CHEMICAL NAME: *(Use a separate page for each unique chemical.)* Nano Titanium Dioxide

COMMERCIAL NAME(S): Tioveil AQ-N-LQ-(WD), Tioveil AQ-G-LQ-(WD), Tioveil TG-LQ-(WD), Tioveil FIN-LQ-(WD)

ANNUAL PRODUCTION VOLUME:

PRODUCTION METHOD(S): Dispersion

IDENTIFICATION OF THE SUPPLIER(S): Croda Europe Ltd.

PARAMETER		VALUE / RANGE[1] (include units)	NAME OF ANALYTICAL METHOD(S)[2]
PHYSICAL PROPERTIES			
SHAPE (MORPHOLOGY)		Acicular	Transmission Electron Microscopy
DENSITY Tap Density g/cm³		0.35	Tap Density
SURFACE AREA		115 m²/g	B.E.T. Isotherm
PARTICLE SIZE DISTRIBUTION	Air		
	Liquid (oil)	Mean Particle size 40-50nm	X-ray Disc Centrifuge
	Solid / Powder		
OTHER (Specify)			
CHEMICAL PROPERTIES			
CHEMICAL COMPOSITION		Titanium Dioxide	X-ray Diffraction
SURFACE MODIFICATION (COATING, FUNCTIONALIZATION)		Alumina Silica	
PURITY		Meets USP monograph	USP Test Methods
SURFACE CHARGE			
DISPERSION[3]	Air	Not Applicable	
	Liquid	Please see Attachment I	
	Solid	Not Applicable	
IDENTIFYING AND DETERMINING CONCENTRATION OF NANO CHEMICAL, ITS METABOLITES, AND DEGRADATION PRODUCTS IN SPECIFIED MATRICES[4] Water, Air, Soil, Sediment, Sludge, Chemical Waste, Fish, Blood, Adipose Tissue, Urine, Other (specify)			
SOLUBILITY	Water Solubility	Insoluble	
	Solubility in Organic Solvent	Insoluble	
N-OCTANOL-WATER PARTITION COEFFICIENT		Not applicable	
STABILITY AND REACTIVITY	Flammability	None	
	Explosiveness	None	
	Oxidizing Properties	None	
	Oxidation Reduction Potential	None	
	Storage Stability and Reactivity (Container Material)	None (stable)	
	Stability to Thermal, Sunlight, and Metal(s)	Stable	

SECTION D: NANOMATERIAL CHEMICAL AND PHYSICAL PROPERTIES *(Attach additional pages as needed)*

PRODUCT / PRODUCTION INFORMATION

NANO CHEMICAL NAME: *(Use a separate page for each unique chemical.)* Nano Titanium Dioxide

COMMERCIAL NAME(S): Solaveil XT-100-LQ-(WD), Solaveil XT-300-LQ-(WD)

ANNUAL PRODUCTION VOLUME:

PRODUCTION METHOD(S): Dispersion

IDENTIFICATION OF THE SUPPLIER(S): Croda Europe Ltd.

PARAMETER		VALUE / RANGE[1] (include units)	NAME OF ANALYTICAL METHOD(S)[2]
PHYSICAL PROPERTIES			
SHAPE (MORPHOLOGY)		Spherical	Transmission Electron Microscopy
DENSITY Tap Density g/cm³		0.73	Tap Density
SURFACE AREA		31 m²/g	B.E.T. Isotherm
PARTICLE SIZE DISTRIBUTION	Air		
	Liquid (oil)	Mean Particle Size 179 nm	X-ray Disc Centrifuge
	Solid / Powder		
OTHER (Specify)			
CHEMICAL PROPERTIES			
CHEMICAL COMPOSITION		Titanium Dioxide	X-ray Diffraction
SURFACE MODIFICATION (COATING, FUNCTIONALIZATION)		Alumina Stearic Acid	
PURITY		Meets USP monograph	USP Test Methods
SURFACE CHARGE			
DISPERSION[3]	Air	Not Applicable	
	Liquid	Please see Attachment I.	
	Solid	Not Applicable	
IDENTIFYING AND DETERMINING CONCENTRATION OF NANO CHEMICAL, ITS METABOLITES, AND DEGRADATION PRODUCTS IN SPECIFIED MATRICES[4] Water, Air, Soil, Sediment, Sludge, Chemical Waste, Fish, Blood, Adipose Tissue, Urine, Other (specify)			
SOLUBILITY	Water Solubility	Insoluble	
	Solubility in Organic Solvent	Insoluble	
N-OCTANOL-WATER PARTITION COEFFICIENT		Not applicable	
STABILITY AND REACTIVITY	Flammability	None	
	Explosiveness	None	
	Oxidizing Properties	None	
	Oxidation Reduction Potential	None	
	Storage Stability and Reactivity (Container Material)	None (Stable)	
	Stability to Thermal, Sunlight, and Metal(s)	Stable	

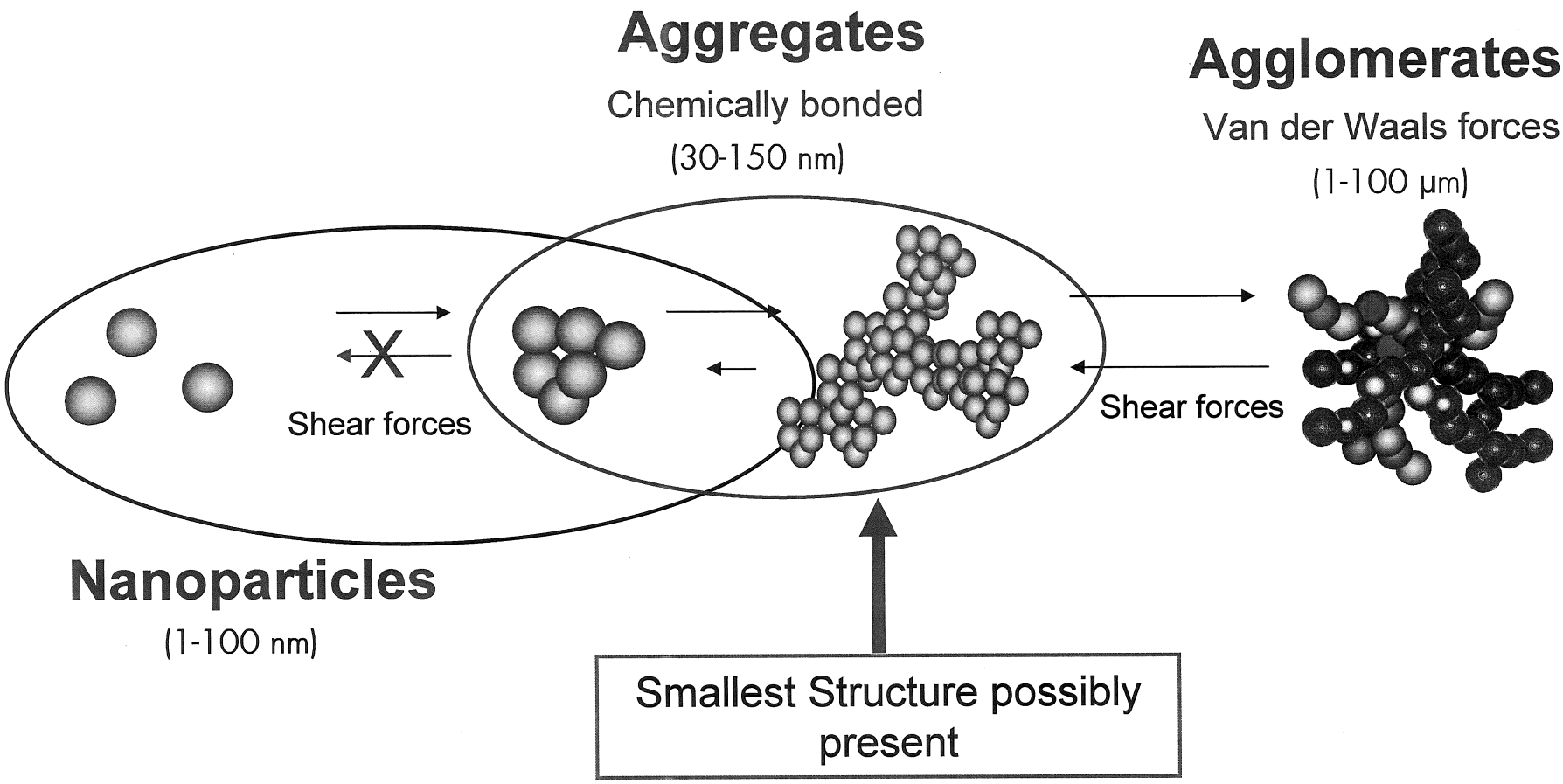
Section D. Attachment I. Dispersion (liquid)

Croda Europe Ltd. manufactures dispersions of titanium dioxide which range from liquid to gels that are used as active ingredients in sunscreen products per the FDA OTC drug monograph for sunscreens. These titanium dioxide dispersions contain some nano size titanium dioxide particles.

In a typical cosmetic or sunscreen product shear forces are applied to emulsion systems in an attempt to produce small particles that are effective at attenuating UV light. Agglomerates can be broken down to aggregates, because they are held together by weak forces, by conventional processing techniques, such as high shear silverson mixers and homogenizers. However, the standard equipment used to produce cosmetic products produce relatively low shear forces compared to the forces that bind together aggregates. In other words, aggregates are not broken down into nanoparticles, leaving aggregates as the smallest units present in a finished cosmetic product.

Please see attached illustration.

Definitions



Section D. Attachment I.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

CRODA

SOLAVEIL™ CT-200-LQ-(WD)

Version 1. Revision Date 16.12.2011 Print Date 17.01.2012

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : SOLAVEIL™ CT-200-LQ-(WD)
Product code : TT00702

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Sunscreen ingredient

1.3 Details of the supplier of the safety data sheet

Company : Croda Inc
Columbus Circle 300-A
08837-3907 Edison
Telephone : +17324170800
Telefax : +17324170804
E-mail address : SDSCompiler@croda.com
Responsible/issuing person

1.4 Emergency telephone number

EUROPE: 00 32 3575 5555 . USA: Transportation Emergency Involving Chemical Spills, Leaks, Fires, or Accidents (24 hr.): (800) 424-9300 . ASIA PACIFIC: 24 hr Toll Free Number: +800 ALERTSGS (+800-2537-8747) // 24 hr Singapore Exchange Number: +65 6542-9595

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (67/548/EEC, 1999/45/EC)

Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Labelling according to EC Directives (1999/45/EC)

Further information : Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

Special labelling of certain mixtures : Safety data sheet available on request for professional users.

2.3 Other hazards

May cause eye irritation.

3. Composition/information on ingredients

3.2 Mixtures

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.
Further information	:	Standard procedure for chemical fires. Use water spray to cool unopened containers.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation.

6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	:	Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

6.4 Reference to other sections

None.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	No special handling advice required. Avoid contact with skin, eyes and clothing.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container. Keep container tightly closed in a dry and well-ventilated place.
Advice on common storage	:	No special restrictions on storage with other products.

7.3 Specific end uses

Specific use(s)	:	Sunscreen ingredient

8. Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis

pH	:	Note: no data available
Melting point	:	Note: no data available
Boiling point	:	Note: no data available
Vapour pressure	:	Note: no data available
Density	:	1.3 g/cm3 at 20 °C
Water solubility	:	Note: no data available
Partition coefficient: n-octanol/water	:	Note: no data available
Solubility in other solvents	:	Note: insoluble
Viscosity, kinematic	:	652 mm2/s at 40 °C
Relative vapour density	:	Note: no data available
Evaporation rate	:	Note: no data available

9.2 Other information

Oxidising potential	:	Note: no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Note: No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid	:	None known.

10.5 Incompatible materials

Materials to avoid	:	Strong oxidizing agents

10.6 Hazardous decomposition products

Thermal decomposition	:	Note: no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish	:	LC0: > 100 mg/l Exposure time: 48 h Species: Fish Remarks: Information refers to the main component.
Toxicity to bacteria	:	EC0: > 5,000 mg/l Species: Bacteria Remarks: Information refers to the main component.

12.2 Persistence and degradability

Biodegradability	:	Remarks: no data available

12.3 Bioaccumulative potential

Bioaccumulation	:	Remarks: no data available

12.4 Mobility in soil

Distribution among environmental compartments	:	Remarks: no data available
Additional adviceEnvironmental fate and pathways	:	Remarks: None.

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

Additional ecological information	:	No data is available on the product itself. Information refers to the main component.

13. Disposal considerations

13.1 Waste treatment methods

Product	:	Dispose of product residue in accordance with the instructions

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.